PONY

المنهج الجديد

ICT

4th Primary

First Term

By

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Introduction

We are delighted to introduce our comprehensive educational series "Pony" in ICT. This book is designed to provide an interesting and attractive style that will capture your attention and keep you engaged throughout your learning journey.

We understand that learning can be challenging, which is why we have made every effort to provide clear and concise explanations of the topics covered in this book. In addition, the book includes a large number of comprehensive exercises designed to help reinforce your understanding of the concepts presented.

We have also taken great care to provide explanatory information for some of the more ambiguous points in the subject matter. We understand that some concepts may be difficult to grasp, and we have made every effort to provide clear explanations and examples to help you understand these points.

Overall, we hope that this book will help you develop a strong foundation in ICT and explore its exciting world.

We hope that you find this book informative, engaging, and enjoyable to read.

Author,
Eng. Osama Youssef

متواجدون في كافة محافظات جمهورية مصر العربية

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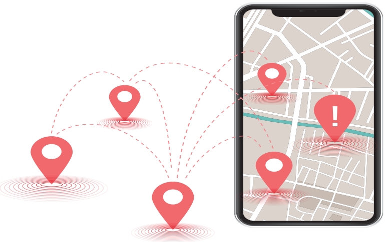

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كل الحقوق محفوظة

لا يجوز أبدًا إعادة إنتاج أي جزء من هذا العمل ولا حفظه بأي صورة من صور الحفظ والتخزين ولا نقله بأي شكل أو أي وسيلة سواء كانت ميكانيكية أو إلكترونية أو نسخًا أو تسجيلًا دون إذن كتابي سابق من الناشر.

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Unit 1

The Role of Technology in Our Lives

Unit Lessons:

Lesson 1 Tools of Scientific Exploration

Lesson 2 Computer Devices and Their Components

Lesson 3 Operating Systems

Lesson 4 Assistive Technology

Lesson 5 Common Technology Problems and Their Solutions

Lesson 6 Sources of Data Collection and Analysis

Lesson 1 Tools of Scientific Exploration

- Scientists rely on many technological tools in their explorations.
- These tools help them in scanning and detecting buried object under the earth's surface, such as:

1. **Metals**
2. **Antiquities**
3. **Treasures**

- يعتمد المستكشفون على العديد من الأدوات التكنولوجية في استكشافاتهم.
- هذه الأدوات تساعدهم في عمليات المسح والاستكشاف عن الأجسام المدفونة تحت سطح الأرض، مثل:

❶ المعادن. ❷ الآثار. ❸ الكنوز.

Important Exploration

1. **Rover C4**
2. **GPR**
3. **Magnetometer**

1 Rover C4:

- It is developed to detect metals.
- It also a 3D ground scanner.
- It is primary to search for treasures and metals buried under the ground (such as gold).
- It can create 3D images of the scanned area.
- This allows users to identify the locations and depths of potential targets.

أدوات الاسكتشاف المهمة:

❶ Rover C4.

- تم تطويره للكشف عن المعادن.
- يستخدم بشكل أساسي للبحث عن الكنوز والمعادن المدفونة تحت الأرض (مثل: الذهب).
- يمكنه إنشاء صور ثلاثية الأبعاد للمنطقة الممسوحة.
- يتيح ذلك للمستخدمين تحديد مواقع الأهداف المحتملة وعمقها.

2 Ground Penetrating Radar (GPR):

- It uses radar to find object buried underground.

الرادار المخترق للأرض (GPR):

- يستخدم الرادار للعثور على الأجسام المدفونة تحت الأرض.

3 Magnetometers:

- They measure the magnetic field.
- They can find metal underground.

أجهزة قياس المغناطيسية:

- قياس المجال المغناطيسي.
- يمكنها العثور على المعادن تحت الأرض.

» You can also use technologies to help you reach the places you want to go.

» These technologies such as:

1. **Satellites**
2. **Global Positioning System (GPS)**

- يمكنك أيضًا استخدام التكنولوجيا لمساعدتك في الوصول إلى الأماكن التي ترغب بزيارتها مثل:

❶ الأقمار الصناعية.

❷ نظام تحديد المواقع العالمي (GPS).

NOTES:

» GPS is It is used to find the location of something using satellites.

- يستخدم للعثور على موقع الجسم باستخدام الأقمار الصناعية.

Test Yourself

Complete the following:

1. .... is used to find minerals in the ground.
2. If you're going to a restaurant for the first time, you can use .... to guide you.
3. The .... enables us to find objects buried underground.
4. .... is a 3D ground scanner that detect metals under ground.

أهم الكلمات والمصطلحات			
3D ground scanner	ماسح أرضي ثلاثي الأبعاد	Magnetometer	مقياس المغناطيسية
Explore	استكشاف	Ground Penetrating Radar (GPR)	رادار اختراق الأرض
Treasures	كنوز	Magnetic field	المجال المغناطيسي
Gold	ذهب	Potential targets	الأهداف المحتملة
3D image	صورة ثلاثية الأبعاد	Photographs	صور فوتوغرافية
Depths	العمق	Location	الموقع
Under the ground	تحت الأرض	Discover	يكتشف / اكتشاف
Satellite	قمر صناعي	buried underground	مدفونة تحت الأرض
Global Positioning System (GPS)	نظام تحديد المواقع العالمي	Tools	أدوات

سلسلة كتب الأستاذ

Exercises on Lesson 1

1 Choose the correct answer:

1. Exploration tools detect .... underground.
   a. Metals b. Treasures c. Remains d. All of them

2. .... Is a 3D ground scanner used to detect metals.
   a. Gps b. magnetometer
   c. Rover C4 d. satellite

3. .... is used to find the location of objects above ground.
   a. GPS b. A magnetometer
   c. GPR d. All of them (القاهرة - بدر 2024)

4. 📖 .... is a device that relies on satellites to detect location of things.
   a. magnetometer b. ground penetrating radar (GPR)
   c. Drones d. global positioning system (GPS)

5. To locate the places that I am interested in visiting, use ....
   a. passwords b. GPS
   c. digital blogs d. browsers (الإسكندرية - إدارة شرق 2024)

6. .... can discover objects buried underground.
   a. GPS b. GPR c. GPA d. Satellites
   (الغربية - طنطا ٢٠٢٥ - المنوفية - شبين الكوم 2025)

7. Rover C4 can identify both location and ....
   a. Time b. Depth
   c. Weather d. Color

8. 📖 The Global Positioning System (GPS) relies on .... to locate places and sites.
   a. Radar b. Satellites
   c. Drones d. data theft (سوهاج 2025)

9 Archeologists depends on .... to search for metals underground.

a. Drones b. satellites c. magnetometer d. GPS

(الإسكندرية المنتزه أول ٢٠٢٥) (الإسماعيلية 2025)

10 The Rover C4 is a .... scanner.

a. 2D b. 3D c. Audio d. Visual

11 .... is a device used to detect metal coins buried underground.

a. Satellites b. Gps c. Drones d. Magnetometer

12 Magnetometer depends on .... to detect things buried underground .

a. Rader
b. Satellites
c. Drones
d. Measuring the magnetic field

13 The .... measures a magnetic field.

a. Drones
b. magnetometer
c. satellite
d. GPS

(القليوبية 2025)

2 Put (✓) or (✗):

1 The Rover C4 device used to create 2D image of scanned areas. ( )

2 GPS is used mainly to measure the magnetic field. ( )

3 Satellites are used underground. (حدائق أكتوبر 2025) ( )

4 The magnetometer is used to find the location of something using satellites. (الإسكندرية – إدارة العجمي 2024) ( )

5 Tourists can use GPS to determine locations while traveling. ( )

6 The Earth's penetrating radar is used to detect underground bodies. (الإسكندرية-المنتزه ثانٍ 2025) ( )

7 GPS uses radar to find object buried underground. ( )

8 The taxi driver relies on the GPS device. (المنوفية - قويسنا 2023) ( )

9 The Global Positioning System (GPS) is used to locate things underground. ( )

10 GPR is a device that uses satellites to locate buried object. ( )

11 Magnetometer is used to determine places via satellites.
(الإسكندرية – المنتزه أول 2025) (   )

12 Ground penetrating radar is used to discover objects buried underground. (الإسكندرية – المنتزه أول 2024) (   )

13 GPR is a device that uses radar to find any object buried underground.
(الدقهلية - طلخا 2023) (   )

14 A magnetometer is used to measure a magnetic field underground.
(   )

15 Archaeologists use a ground penetrating radar to find objects above the ground. (البحر الأحمر – الغردقة 2023) (   )

16 The Global Positioning System (GPS) relies on Satellites to determine places and locations. (البحيرة - دمنهور 2025) (   )

17 A magnetometer is used to discover metals underground. (   )
(الإسكندرية – العجمي 2023)

3 Choose from column (A) what suits it in column (B):

Column (A)	Column (B)
1 Amagnetometer	a. 3D ground scanner that creates 3D images of the scanned area.
2 GPS	b. enables us to discover minerals underground.
3 GPR	c. helps to find the location of the places you want to visit. (سوهاج2025)
4 Rover C4	d. enables us to discover objects buried underground.

1 .... 2 .... 3 .... 4 ....

Play with PONY

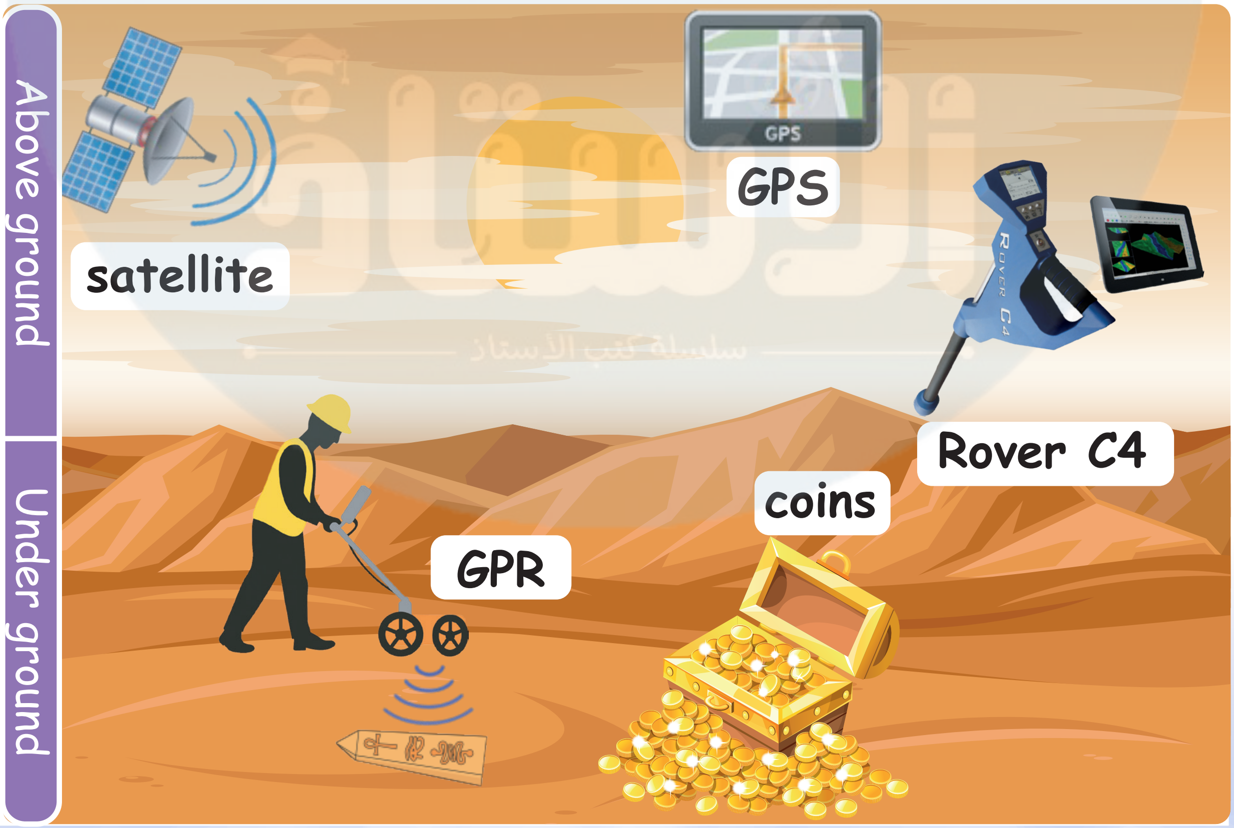
Help the Explorer to fill in the Missing words:

1- .... Is used to find the location of something using satellites.

2- .... is a 3D ground scanner that search for treasures and metals under ground.

3- magnetometer can find .... underground.

4- .... can discover any objects buried underground.



Lesson 2 Computer Devices and Their Components

The computer

It is an electronic device that stores, processes .and restores data

هو جهاز إلكتروني يقوم بتخزين ومعالجة واسترجاع للبيانات.

The importance of the computer

Computers can be used to do the following:

1. Write documents.
2. Browse the internet.
3. Play electronic games.
4. Create presentations.
5. Create videos.

استخدامات الكمبيوتر:

1. كتابة المستندات.
2. تصفح الإنترنت.
3. ممارسة الألعاب الإلكترونية.
4. إنشاء عروض تقديمية .
5. إنشاء مقاطع الفيديوهات.

NOTES:

Computer devices come in different size and shapes:

أجهزة الحاسب الآلي تأتي بأحجام وأشكال مختلفة.

1. Desktop Computer (PC)

2. Laptop

3. Tablet

4. Touchscreen devices

Computer Components مكونات الكمبيوتر

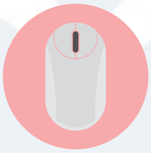
- **Hardware**
  - Input Devices
  - CPU
  - Output Devices
- **Software**

1 Input Devices

» They are devices that enter data into a computer.

« هي أجهزة تقوم بإدخال البيانات إلي جهاز الكمبيوتر.

Examples of input devices:

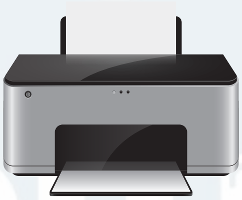
Device	Figure	Function
1 Keyboard		• To type letters and numbers into the computer. لإدخال الحروف والأرقام على الكمبيوتر.
2 Mouse		• To select and move things easily. لتحريك واختيار الأشياء بسهولة.
3 Camera		• To input images or videos into the computer. تقوم بإدخال صور أو فيديوهات للكمبيوتر.
4 Microphone		• To input sound, audio, into the computer. يقوم بإدخال صوت إلى الكمبيوتر.
5 Touch screen		• Allow the user to move things on computer. تسمح للمستخدم بتحريك الأشياء على الكمبيوتر.

2 Output Devices

» They are the devices that **output** information.

هي أجهزة تقوم بإخراج المعلومات.

Examples of output devices:

Device	Figure	Function
1 Screen		• Shows what you are doing on computer. تُظْهِر ما تقوم به وتفعله على الكمبيوتر.
2 Speaker		• To output sound. لإخراج الصوت من الكمبيوتر.
3 Printer		• To output texts or images from your computer on paper. لإخراج وطباعة النصوص أو الصور من الكمبيوتر على الورق.
4 Braille terminal		• It allows blind people to use computers. تُتيح للأشخاص المكفوفين استخدام الكمبيوتر.
5 Speech synthesizer		• It allows non-verbal people to speak. (How?) • It changes text to speech. يساعد الأشخاص الذين يعانون من عدم القدرة على الكلام على التواصل. يقوم هذا الجهاز بتحويل النص المكتوب إلى كلام.

How does a computer work?

» It receives data then process it.
Finally, It displays the results through output devices.

Input data → Cpu Processing → Output Information →

« كيف يعمل الحاسوب؟ يستقبل البيانات ثم يعالجها وأخيرًا، يعرض النتائج من خلال أجهزة الإخراج.

NOTES:

1. Using a computer usually requires:
   - Keyboard.
   - Mouse.
   - Touch screen.
   - Camera.
   - Microphone.
   - Speaker.
2. A touch screen can be used as an input device and an out put device.
3. The most important element of the computer system is you (user)! Why?
   - Because the quality of output depends on the data you entered and how well you know how to use the devices.

ملاحظات:

1. عادة ما يتطلب استخدام الحاسوب وجود:
   - لوحة مفاتيح، فأرة، شاشة لمس، كاميرا، ميكروفون، ومكبر صوت.
2. يمكن استخدام شاشة اللمس كجهاز إدخال وجهاز إخراج في نفس الوقت.
3. العنصر الأهم في نظام الحاسوب هو أنت (المستخدم)! لماذا؟
   - لأن جودة المخرجات تعتمد على البيانات التي قمت بإدخالها، وعلى مدى معرفتك بكيفية استخدام الأجهزة

أهم الكلمات والمصطلحات

Processing data	معالجة البيانات	Screen	الشاشة
Write documents	كتابة المستندات	Speaker	مكبر الصوت
Browse the internet	تصفح الإنترنت	Output sound	إخراج الصوت
Store	يخزن	Printer	الطابعة
Restore	يستعيد	Braille	طريقة برايل
Manufacturing date	تاريخ التصنيع	Blind people	الأشخاص المكفوفون
Hardware	الأجهزة	Speech synthesizer	مركب الكلام
Software	البرامج	Non-verbal people	الأشخاص غير الناطقين
Input Devices	أجهزة الإدخال	Changes text to speech	يحول النص إلى كلام
Output Device	جهاز الإخراج	Touch screen	شاشة اللمس
Keyboard	لوحة المفاتيح	User	المستخدم
Mouse	الفأرة	Select and move things	تحديد وتحريك الأشياء

Exercises on Lesson 2

1 Choose the correct answer:

1. The computer is an electronic device that is used for ....
   a. Browsing the internet b. writing documents
   c. Creating videos d. all of them
2. Types of computers ....
   a. Personal computer b. Tablet
   c. laptop d. all of them (الإسكندرية - المنتزه أول 2025)
3. keyboard is used to insert .... to computer.
   a. images b. Letters and numbers
   c. sounds d. videos
4. One of the attached devices that is used during video calls is the ....
   a. printer b. scanner c. camera d. none of them
   (الإسكندرية - المنتزه ثانٍ 2023)
5. .... is/are devices that are used to enter data into a computer.
   a. Input devices b. Output devices
   c. The CPU d. Screen
6. The component responsible for entering the data into a computer is the ....
   a. keyboard b. CPU c. printer d. none of them
   (الإسكندرية - المنتزه ثانٍ 2024) (الإسكندرية - إدارة شرق 2024) (كفر الشيخ 2023)
7. .... terminal is a way to read text for blind people by touching.
   a. Earpiece b. Screen
   c. Braille d. Microphone (الجيزة - العمرانية 2025)
8. .... is used to input text for the computer.
   a. speakers b. microphone
   c. keyboard d. printer (البحيرة - دمنهور 2025)

9 The .... is used to output audios from the computer.

a. speaker　b. microphone
c. keyboard　d. printer
(أبناؤنا في الخارج 2025)

10 .... are devices that output information from a computer.

a. Input devices　b. Output devices
c. The CPU　d. The keyboad

11 A .... is used to print the text and images on paper.

a. Screen　b. printer　c. scanner　d. speaker

(الإسكندرية - المنتزه أول 2025)

12 All the following are from input devices of the computer components, except the ....

a. screen　b. microphone　c. keyboard　d. mouse

13 .... is a device that allows non-speakers to speak.

a. Speech synthesizer　b. Keyboard
c. Speaker　d. None of them
(الإسكندرية - العجمي 2025)

14 Information is considered the processing product of ....

a. data　b. digital blogs
c. email　d. hardware

(الإسكندرية - المنتزه ثانٍ 2025) (الجيزة - العمرانية 2025)

15 The .... allows blind people to use computer.

a. speech synthesizer　b. printer
c. keyboard　d. braille terminal
(حدائق أكتوبر 2025)

16 The speech synthesizer is a type of ....

a. Input device　b. output device
d. printing device　d. software
(الإسكندرية - المنتزه ثانٍ 2024)

17 The............................ enables you to enter sounds into computer.

a. screen　b. speaker　c. microphone　d. mouse

(الغربية - طنطا 2024)

18 To hear others through the internet, you should have a/an ....

a. microphone　b. speaker　c. camera　d. printer

19 The most important element of the computer system is the ....

a. mouse b. user c. CPU d. screen

(الجيزة - حدائق أكتوبر 2024)

20 Keyboard is used to insert ....

a. videos b. Images

c. Sounds d. Letters&number (الإسماعيلية 2025)

2 Put (✓) or (✗):

1 The computer is an electronic device for storing and processing data.

(الإسكندرية ـ شرق ٢٠٢٥) (   )

2 Input devices in computers work on processing data. (   )

(الجيزة - العمرانية 2025) (القاهرة - عين شمس 2024)

3 Computers are used to create presentations.

(الإسكندرية - المنتزه أول 2023) (   )

4 Braille terminal is from input devices. (   )

5 Input devices include the keyboard and mouse. (   )

6 Non-verbal people use speech synthesizers to communicate using the computer. (   )

7 A computer first outputs data, then processes it. (   )

8 A printer and speakers are examples of output devices. (   )

9 We use microphones in chat programs to input the sound. (   )

(الجيزة - بولاق الدكرور2024)

10 Information is the final result we get after processing the data.

(الإسكندرية - المنتزه ثانٍ ٢٠٢٥) (   )

11 All computer devices have the same shape. (السويس 2024) (   )

12 The most important element of the computer system is you. (   )

13 The speech synthesizer is the component responsible for output visual information. (المنوفية - شبين الكوم 2025) (   )

3 Complete the following sentences using the words between the brackets:

(screen – speaker – Braille terminal – keyboard – microphone)

1. .... is a device that allows blind people to use computer. (الإسكندرية- وسط 2025)
2. A .... enables you to enter the sound into the computer.
3. A .... enables you to write letters and numbers. (البحيرة 2023)
4. .... is used to display data, images and videos. (بورسعيد 2025)
5. A .... is used to output audio data.

4 Cross out the odd word:

1. Keyboard – Printer – Camera – Mouse (..................................)
2. Printer – Speaker – Microphone – Screen (..................................)
3. Speech synthesizer – Braille terminal – Keyboard (..................................)

5 Classify these words into input or output devices:

(Speech synthesizer – Touch screen – Speaker – Camera – Keyboard – Printer)

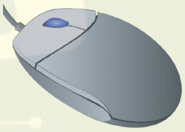
Input Devices	Output Devices
....	....
....	....
....	....

Play with PONY

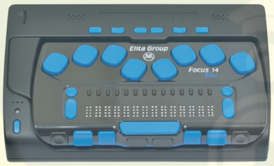
Circle output devices with blue | circle input devices with red

Keyboard

camera



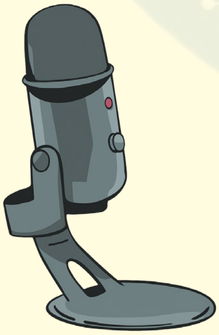
Mouse



Braille terminal

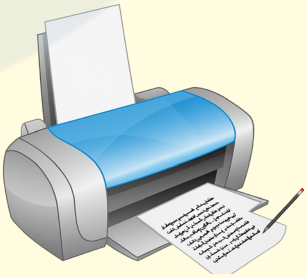
screen

Speech synthesizer



Microphone

Speakers



Printer

سلسلة كتب الأستاذ

Test Yourself on Lessons 1&2

1 Choose the correct answer:

1. The .... is used to locate things via satellite.
   a. GPR b. magnetometer
   c. GPS d. all of them (الجيزة - كراسة 2024)
2. .... is a device used to output sounds from computer.
   a. Speakers b. Microphone c. keyboard d. printer
3. The .... is a device that is used to find buried statues underground.
   a. GPS b. drone c. GPR d. satellite
4. .... is a device used to display data, images, and videos.
   a. keyboard b. headphones c. screen d. printer
5. .... is from the input units.
   a. Microphone b. speakers c. display screen d. printer
6. The .... is used to detect old coins underground. (حدائق أكتوبر ٢٠٢٠)
   a. magnetometer b. drone c. GPS d. none of them
7. .... is a device that helps non-speakers to use the computer.
   a. Speech synthesizer b. Microphone
   c. speaker d. printer

2 Put (✓) or (✗):

1. GPS is used to find places you want to visit. (قنا ٢٠٢٠) (   )
2. The speech synthesizer is an input device. (   )
3. To discover objects buried underground, we use GPR. (   )
4. The quality of a computer's output depends on the data you input. (   )
5. The Magnetometer is used to detect coins underground. (البحيرة - دمنهور ٢٠٢٠) (   )
6. The computer is device that can store, process, and retrieve data. (   )
7. The Rover C4 device can only detect gold underground. (   )
8. GPR uses satellites to find objects buried underground. (   )